CLAIMS:

1. A lighting device for generating mixed colors, which device comprises a light emission surface and a plurality of light sources of different colors, characterized by an optical waveguide plate (1) into which a plurality of cavities (20) is provided, each cavity (20) accommodating a light source (21), and each cavity (20) having an upper side (203) facing the light emission surface (11) and side walls (201), said upper side (203) being coated with a first reflecting layer (204), while the coupling of the light into the optical waveguide plate takes place through the side walls (201).

2. A lighting device as claimed in claim 1, characterized in that the side walls (201) of the cavities (20) extend substantially perpendicularly to the light emission surface (11), and the upper sides (203) of the cavities (20) extend substantially parallel to the light emission surface (11).

3. A lighting device as claimed in claim 1, characterized in that the cavities (20) are coated with a second reflecting layer (121) at their lower sides opposite to the upper sides (203).

4. A lighting device as claimed in claim 1, characterized in that the cavities (20) are substantially cylindrical.

5. A lighting device as claimed in claim 1, characterized in that the cavities (20) are provided in the lower side (12) of the optical waveguide plate (1).

6. A lighting device as claimed in claim 1, characterized in that the light sources (21) comprise a plurality of red, green, and blue light-emitting diodes which are distributed such that no light sources of the same color lie in mutually adjoining cavities (20).

7. A lighting device as claimed in claim 3, characterized in that the second reflecting layer (121) extends over the side faces (13 to 16) and the lower side (12) of the optical waveguide plate (1).

8. A lighting device as claimed in claim 7, characterized in that the second reflecting layer (121) is at a distance from the optical waveguide plate (1), which distance constitutes an air gap.

9. A lighting device as claimed in claim 1, characterized in that the first reflecting layer (204) is prolonged by a first portion (204a) in horizontal direction into the optical waveguide plate (1).

10. A lighting device as claimed in claim 1, characterized in that the first reflecting layer (204) is prolonged by a second portion (204b) along the side walls (201) of the cavity (20).

11. A lighting device as claimed in claim 1, characterized in that the edges of the cavities (20) lying opposite the upper side (203) are surrounded by a third reflecting layer (205).

12. A liquid crystal display with a lighting device as claimed in any one of the preceding claims.

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